

itself; but in the earlier stages there is hypertrophy to meet the systemic difficulty—not, we believe, to meet the defect of the renal function, pure and simple, to push on, as it is said, the impure blood, but to meet the loss of arterio-capillary elasticity, and the hindrance to the flow of plasma through the tissues.

Whilst we can no longer, in one large class of cases, refer the arterio-capillary changes in the various organs, including the kidney itself, to the kidney as the primary seat of disease, and to the consequent uræmia, it is still a question how far a local fibroid change beginning in the kidney, and having its origin there, may lead to systemic arterio-capillary changes of the same character as those which come on idiopathically in later life.

For the present, I am content to leave this matter for future inquiry.

It is admitted that granular contracted kidney is rare in the early periods of life. It is also admitted that the kidney may be extremely atrophied by fibroid changes in it of a local kind, in young subjects, and that such changes may be fatal by unexpected uræmia without cardio-vascular change.

REPORT OF A CASE OF INTESTINAL OBSTRUCTION, SUCCESSFULLY TREATED BY LAPAROTOMY;

WITH REMARKS UPON THE TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.

By RANDOLPH WINSLOW, M.A., M.D.,

DEMONSTRATOR OF ANATOMY IN THE UNIVERSITY OF MARYLAND, AND PROF. OF SURGERY IN THE WOMAN'S MEDICAL COLLEGE OF BALTIMORE; SURGEON TO UNIVERSITY AND DAY VIEW HOSPITALS.

THAT obstruction of the bowels with its attendant evils is not an infrequent occurrence, will be admitted by all who have given attention to the subject. That it is a serious and usually fatal affection cannot be denied. The term itself is used to denote a series of morbid conditions, which in many cases have only this symptom in common, whilst in other respects they are almost as widely separated as are the various conditions which give origin to the common symptom of pain.

During the past year much has been written, especially in England, about the treatment of this class of cases, and there is still a great diversity of opinion in regard to the matter. Mr. Jonathan Hutchinson decidedly opposes early interference in cases of intestinal obstruction, and thinks it of but little value in those which have been some time in existence. He advocates what he terms abdominal taxis, under an anæsthetic. By abdominal taxis, he means a thorough kneading of the abdomen, with inversion of the patient, shaking him, tossing him in a blanket, and a

variety of rough gymnastics, the object being to dislodge the bowel, or untwist the volvulus. At the same time, he uses large enemata and laxative medicines. If these means do not succeed, he waits and keeps the patient on a low diet, and gives opium or belladonna internally, and subsequently repeats the abdominal taxis. He reports a series of interesting cases in which a cure was effected by these means. He favors laparotomy as a last and most desperate resort.

Mr. Frederick Treves, and many others, take the opposite side of the question; considering the conditions which produce acute obstruction to be, for the most part, of a necessarily fatal character unless speedily relieved, they do not waste time in what they regard as useless, if not injurious, manipulations, and proceed to open the belly as soon as assured that the case is one of serious obstruction and not of obstinate constipation.

Every one concedes that an accurate differential diagnosis is in many cases impossible in the present state of our knowledge, and that it is in the highest degree important to perfect our powers of diagnosis. The opinion of so eminent a surgeon as Mr. Hutchinson must always command respect, and the report of his cases treated by abdominal taxis deserves most careful consideration; and yet I think that few practical surgeons would be willing to adopt his line of treatment. It seems to me to be a very hazardous procedure, strongly to knead the intestines and to shake and jerk a patient with a strangulated bowel about in a way that is unpleasant and painful to a well person, and that, too, in a case in which the diagnosis has not been accurately determined. It is in the highest degree probable that the patient would be injured and not benefited in a large number of cases. Suppose an internal hernia, a tight constriction of some portion of the intestinal tract, is present, and has already been in existence for days, any rough handling may cause perforation of the gut and extravasation of feces; or the prolapse may be increased instead of diminished; or the intussusception may be violently drawn out, tearing conservative adhesions; or the volvulus increased. Who would think of roughly manipulating a femoral, or any other strangulated hernia? Who would delay resorting to herniotomy, if, after very gentle taxis, fecal vomiting or other symptoms of strangulation continued? It is true that invaginated bowels sometimes are released, either by spontaneous reduction or by sloughing of the invaginated portion; volvuli are sometimes untwisted, and internal herniæ are relieved either by being reduced, or by adhesion to the abdominal walls and the formation of an artificial anus, but such methods of cure are extraordinary and are not to be expected.

Volvulus and intussusception offer the most favorable conditions for recovery, and they are attended with a very large mortality; but in the case of internal constrictions from adhesions or bands, whether from congenital defects or pathological changes, a cure by the process of

nature is of such rarity that it ought not to come into consideration, and the patient unless relieved by art is almost inevitably doomed to death. Unfortunately, it is not possible to reach a certain diagnosis in all cases, but this very difficulty is one of the strongest arguments in favor of opening the abdomen, both as a diagnostic and a curative measure. I certainly think severe pain, obstinate constipation, and stercoraceous vomit are a congeries of symptoms of sufficient gravity not only to justify, but to demand imperatively, the performance of laparotomy.

Six years ago a case of intestinal obstruction, probably from volvulus, or possibly from an impacted gall-stone, came under the care of the writer, which was relieved by medical means; the benefit lasted, however, but a short time, when symptoms of obstruction again set in, and only terminated with the life of the patient. I proposed an operation, but was overruled by the consulting surgeon. This case made a deep impression upon my mind, and I determined not to let a similar case die in my hands, without at least offering the patient the chance of relief by laparotomy or colotomy.

Another case which died from obstruction, the autopsy of which I was invited to perform, showed how slight may be the constriction which is sufficient to produce fatal strangulation of the bowel. It was that of a young child who died after an illness lasting several days, in which vomiting and insuperable obstipation were the main symptoms. The autopsy revealed an internal hernia of a portion of small intestine, which had become strangulated by passing under a small band of tissue not thicker than a few strands of horsehair. This band was attached by both ends to a portion of intestine, thus forming a free loop, through which the hernia occurred. It seemed to me to have been of congenital origin, as there was no other sign of peritonitis. The division of this band in time, would probably have saved the life of the little patient. A case presenting many similar features was successfully operated on by Mr. R. N. Pughe, of Liverpool. Several other cases are mentioned in recent journalistic literature, in which very slight bands or adhesions were the cause of strangulation.

The importance of an early recognition of intestinal obstruction cannot be overestimated, and with its recognition comes the duty of being prepared to give the patient every possible chance for recovery. These cases come when least expected, and demand prompt attention, and usually not much time is allowed the practitioner for consultation or reference. He must often act upon his own responsibility, promptly and boldly, or the golden opportunity will be lost.

Within a few weeks of each other there have occurred three cases of intestinal obstruction in the practice of gentlemen connected with the University of Maryland. One case was due to the adhesion of a loop of intestine to the pedicle of an ovarian tumor, which had been success-

fully removed some weeks previously. Another was due to the strangulation of a small portion of gut in the femoral ring, which produced no symptoms by which the seat of constriction could be located before opening the abdomen. Laparotomy was performed, the incarcerated intestine released, and the patient recovered. The other case occurred in my own practice.

It is only by accumulating facts bearing upon the results of treatment that an approximate idea can be formed of the comparative value of different therapeutical procedures, whether medicinal or operative; and, in order to contribute my mite to the elucidation of the subject under discussion, I desire to place upon record the following case:

CASE.—M. E. B., colored, aged twenty-two years, unmarried, but the mother of two children; has been generally healthy. Four years ago, according to her own account, she suffered from *procentia uteri*, and, since she has had children, from "womb disease." She gives no history of having had pelvic cellulitis or peritonitis. She had suffered from constipation for several days, with pain in the abdomen, and occasional vomiting. She took purgatives—oil and salts—without effect, and sent for me on December 6, 1885.

I visited her about 10 p. m., and found her rolling over the bed in agony. Her bowels had not been moved for five days, and she had vomited twice on the day on which I saw her. The patient is slenderly built, the abdomen moderately distended and somewhat painful upon pressure. She complains of pain above the umbilicus more than anywhere else. When in a paroxysm of pain, the coils of intestines can be seen outlined upon the abdomen, and they can be felt moving under the hand. She had what appeared to be a small, reducible, inguinal hernia on the left side, which reappeared soon after being reduced. She had no pain or other symptoms of strangulation at any of the abdominal rings. There had been no fecal vomiting. I administered gr. one-third morph. hypodermatically, and ordered castor oil $\mathfrak{z}\mathfrak{j}$, oil of turpentine $\mathfrak{z}\mathfrak{j}$, a nauseous but very effective combination, to be followed by one grain of calomel every hour.

Dec. 7. The oil has had no effect, and was, some time subsequent to its administration, returned with the vomit. Six grains of calomel having been taken, it was discontinued. She had a pretty good night in consequence of the hypodermatic injection. She is in good condition, and is comparatively free from pain; pulse 80-90, temperature $98\frac{1}{2}^{\circ}$. Having placed the patient in the genupectoral position, I introduced a flexible tube twelve to fifteen inches up the bowel and administered copious injections of warm water, which were returned almost unstained. Epsom salts and fluid extract of senna were ordered in small doses, which had the effect of increasing the peristalsis of the bowel with additional pain. Seeing that obstruction and not impaction of feces was present, I discontinued all medicine internally, and gave a full dose of morphia hypodermatically. Vaginal examination revealed nothing in regard to the nature of the obstruction.

8th. 10 A. M., condition unchanged, and I decided to operate. At 2 p. m. I availed myself of the opinion of my friend Prof. Michael, who coincided with me in regard to the propriety of an operation. The pa-

tient, in the interval between my visits, had vomited matter which, in appearance and odor, indicated feces. All preparation had been made during the morning for laparotomy. The belly had been well washed with soap and water, and afterward a cloth, moistened with hot bichloride of mercury solution, was laid upon it; instruments and hands disinfected with bichloride solution, and afterward kept moistened with a mildly carbolized lotion; all the water used had been boiled, and was kept in a tin boiler on a stove in the room, so that we might have an abundant supply of hot water; sponges and sutures had been in sublimate solution for months; hot boiled water, slightly carbolized, was used for the sponges and flannels during the operation. I operated in the bedroom of the patient, which was small and ill ventilated, and its appearance did not suggest a state of very rigid antisepticism. I was kindly and efficiently assisted by Drs. Michael, Chunn, and Gertrude Scott, for whose intelligent aid I am under many obligations.

This incision was in the linea alba, midway between the umbilicus and pubes and at first about two inches in length, subsequently lengthened to six inches. Bleeding was arrested before the peritoneum was opened. Coils of small intestine presented in the wound, which were reddened and distended but smooth and glistening. The abdominal rings were first explored. On the left side an apparant hernia was present which could not be reduced. External pressure caused the protrusion to bulge into the abdominal cavity, but did not expel its contents, whilst something was interposed between the ring and the finger which was mistaken for adherent intestine. As it could not be reduced from within, herniotomy was performed in the groin, and a sac was encountered, which when opened gave exit to serous fluid, but no intestine was found, and the finger could not be passed through the canal into the abdomen. This was either a cured hernia, or, as suggested by Dr. Michael, a hydrocele of the round ligament.

The obstruction not being found at any of the rings, the incision was enlarged upward to the navel. The intestines were covered with flannels wrung out of hot carbolized water. The abdominal cavity was now explored with the hand, beginning at the cæcum, but without finding any obstruction. The small intestines were now drawn out and wrapped in hot cloths; after a large portion of the small intestine had been removed from the abdominal cavity, a loop of ileum was found dipping into the pelvis, which was firmly attached between the uterus and rectum, and neither the descending nor ascending portion of the loop could be moved. The intestine appeared to be firmly and evenly attached to the pelvic wall, without any gaps or openings in which I could begin its separation; finally, loosening of the adhesions was effected, and the bowel was gradually released with the finger. After two distinct lines of adhesion had been broken up, the loop of deeply congested gut was lifted out of the pelvis, and the adhesions were found to have involved a space about six inches in length, the seat of greatest constriction having been about six or eight inches from the ileo-cæcal valve. At this point the bowel had been sharply bent upon itself, and above the bend the intestines were distended, while below it they were collapsed. In separating the gut, its peritoneal coat was torn off in several places, and its muscular coat exposed. In one place five Lembert sutures were inserted, as the intestinal wall looked weak.

The abdominal and pelvic cavities were carefully cleansed and the wounds closed. The abdominal incision was closed with five or six strong sutures passing through the entire abdominal walls, but before tying these deep sutures the peritoneum was united separately with a continuous catgut suture. A number of stitches passing through the tissues external to the peritoneum were then inserted, and subsequently the edges of the skin were secured with a continuous suture of fine silk. Iodoform powder was freely dusted on and around the incision, several thicknesses of iodoform gauze were laid over this, then eight layers of plain gauze and over all a protective. Whilst I was closing the abdominal incision Dr. Michael was kind enough to close the inguinal wound, using the continuous catgut suture, and several strands of catgut instead of a drainage tube. Iodoform in powder, gauze, mackintosh, spica bandage and bandage around the belly completed the dressings, the whole operation lasting over an hour.

During the operation the patient had unmistakable stercoraceous vomiting, and whilst handling the intestines the pulse increased in frequency. At the conclusion of the operation, her pulse was rapid but good, and the shock was not marked. She was placed in bed, bottles of hot water applied to her skin, and a small quantity of whiskey administered hypodermatically.

Whilst searching the abdominal cavity for the seat of obstruction, I made an observation which may have considerable diagnostic and prognostic value. I discovered by the sense of touch, that the mesenteric glands were markedly enlarged, hence I am led to anticipate a general tuberculosis at some future time.

At 7 P. M. reaction was found to be complete, the skin warm, the patient conscious and nearly free from pain. I drew the urine, which was normal in appearance and small in quantity.

At 10 P. M. pulse 124 in frequency and good in character, temp. $99\frac{3}{4}^{\circ}$, resp. 22. She is very comfortable and hopeful, has had no vomiting and scarcely any pain, gave ten minims Magendie's solution, hypodermatically. Allowed her to have cracked ice, and one teaspoonful of milk every hour, as she had had no food for a week. Ordered her to keep the supine position without moving. Dec. 9th, 9 A. M., patient looks well, slept well during the night, has had no vomiting, and very little pain, is very hungry, urinates freely, tongue clean, lies with the legs stretched out, and the belly is not tender upon pressure, except over the wound. Pulse 123, temp. $99\frac{3}{4}^{\circ}$, resp. 22. Milk to be given every half hour in tablespoonful doses and an equal quantity of water if she desires it. P. M., condition unchanged, has passed flatus *per anum*, pulse 128, temp. $100\frac{3}{4}^{\circ}$, resp. 20. Allowed to have two tablespoonfuls of milk every half hour, as she is ravenously hungry.

The further history is uneventful. The pulse on the second day fell to about 100 beats in the minute, and the temperature remained below 100° F. On the fourth day a large, consistent, feculent passage was voided after an enema of soapsuds. She was kept on a restricted diet of milk, with a few dry crackers, for the first week. On the ninth day the dressings were opened for the first time, and the deep sutures removed; but as the edges of the skin were not quite healed, the superficial continuous suture was allowed to remain three days longer. Not one drop of pus was seen anywhere. The wound in the groin, which was sutured

WINSLOW, CASE OF INTESTINAL OBSTRUCTION. 417

with catgut, healed firmly everywhere under one dressing, and did not require to be dressed again. She was discharged cured on December 26th.

DAILY RECORD OF VITAL PHENOMENA.

Date.	A. M.			P. M.		
	Pulse.	Temp.	Resp.	Pulse.	Temp.	Resp.
Dec. 8				124	99 $\frac{2}{3}$ ^o	22
" 9	123	99 $\frac{1}{2}$ ^o	22	128	100 $\frac{1}{2}$	20
" 10	114	99 $\frac{1}{2}$	22	97	99 $\frac{1}{2}$	20
" 11	99	99 $\frac{1}{2}$	22	102	99 $\frac{1}{2}$	
" 12	100	99 $\frac{1}{2}$	20	99	99 $\frac{1}{2}$	20
" 13	102	99 $\frac{1}{2}$	18	105	99 $\frac{1}{2}$	18
" 14	101	99 $\frac{1}{2}$ ^o	21	105	99 $\frac{1}{2}$	22
" 15	103	99 $\frac{1}{2}$ ^o	21	100	99 $\frac{1}{2}$	21
" 16	100	99 $\frac{1}{2}$	20			
" 18	104	99 $\frac{1}{2}$				
" 19		98 $\frac{3}{4}$				
" 21	90	98 $\frac{3}{4}$	22			

Several facts in the above history deserve more than a mere mention. One of the most noticeable features was the absolute cessation of nausea and vomiting after the operation; from the time she vomited stercoraceous matter whilst under ether, she had neither nausea, straining, nor vomiting. Pain ceased almost as suddenly, and with the exception of a certain amount of smarting in the incision, she was entirely comfortable. Hunger was experienced almost immediately, but was not gratified. During the first twelve hours, only a teaspoonful of milk every hour was allowed, with cracked ice. After the first twenty-four hours a tablespoonful of milk every half hour, which was increased to two tablespoonfuls on the second day; subsequently three or four dry crackers were added, and after the first week a more generous diet. No medicine was given except two hypodermatic injections of morphine within the first twenty-four hours.

The escape of flatus on the second day, and of feces on the fourth, gave evidence that the constriction and paralysis of the bowel had been overcome, and that it was capable of resuming its functions. From the deeply congested appearance of the bowel, it was the opinion of those present, that she would not have lived forty-eight hours longer. Peritonitis had not, however, actually set in, as there was neither serum nor lymph found within the abdominal cavity.

The next time I have occasion to open the belly, I will modify the suture used in this case, to this extent, viz., suturing of the peritoneum will be done separately with continuous catgut; I shall then pass deep silk sutures through the abdominal walls, external to the peritoneum, as this will tend to prevent pus from finding an entrance into the cavity, should any form.

Two methods of treatment of intestinal obstruction remain to be mentioned. The first consists in washing out the stomach, and thereby producing mechanical vomiting, and emptying the intestines of gas and feces. This method is highly recommended by Kussmaul, and deserves a trial in appropriate cases, as it appears to be harmless. The other method is that so highly lauded by Illoyay in the last number of this journal (Jan. 1886)—the forcible distention of the bowel with water under strong pressure. It is well known that water can be forced through the ileo-cæcal valve by simply inverting the patient, and using a Davidson's syringe. My friend, Dr. John Morris, of this city, relates a case in which, under these circumstances, water was seen to escape from the mouth in jets synchronous with the squeezing of the bulb of the syringe. I think that the degree of force just indicated is as great as should be used in administering enemata; hence I regard the injections under strong mechanical pressure as very dangerous, perhaps as much so as Mr. Hutchinson's abdominal taxis.

In conclusion, I wish to express my opinion decidedly against any and all severe methods of attempting to overcome the obstruction whether by rough manipulations, or by rectal injections under strong pressure. On the other hand, I deprecate resorting to operation until a fair trial of medical means has failed to relieve the condition, and until it is reasonably certain that there is some mechanical hindrance to the passage of the feces, which will terminate fatally unless relieved by operation. For obstruction in the large intestine colotomy would in many cases afford relief. For persistent obstruction of the small intestine, my preference is decidedly in favor of laparotomy in the linea alba below the umbilicus, under rigid antiseptic precautions, as being the most precise, scientific, and rational means of discovering the cause and seat of trouble, and of remedying it at the same time. Whilst I am not one of those who underrate the risks of laparotomy, I do not think an exploratory incision to be a more serious procedure than abdominal taxis, or enemata under heavy pressure, and I do think it much more certain and reliable in its results.

1 MOUNT ROYAL TERRACE, BALTIMORE,
January 12, 1886.